

WHAT IS CLAIMED IS:

1. A method of forming an insulating film in a semiconductor device,  
comprising the steps of:

5 forming a low dielectric constant insulating film containing a foaming  
agent on a semiconductor substrate in which various elements for forming the  
semiconductor device are formed;

forming a dual damascene pattern in the low dielectric constant  
insulating film; and

10 performing an annealing process so that the foaming agent reacts to  
form pores, thus making the low dielectric constant insulating film a porous  
low dielectric constant insulating film.

2. The method as claimed in claim 1, wherein ploy methyl metacrylate  
(PMMA) copolymer, and high polymer having aliphatic or aromatic core are  
15 used as the foaming agent.

3. The method as claimed in claim 1, wherein methyl silsesquioxane  
(MSSQ) is used as a matrix of the low dielectric constant insulating film.

20 4. The method as claimed in claim 1, wherein the process of forming  
the dual damascene pattern is performed at a temperature of -50°C to room  
temperature.

5. The method as claimed in claim 1, wherein the annealing process is performed at a temperature in the range of 200 °C to 500 °C.